# The Role of the Environmental Manager in Advancing Environmental Sustainability and Social Responsibility in the Organization

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## ABSTRACT

A changing business climate has led many organizations to embrace environmental sustainability and social responsibility; however, organizational roles and responsibilities in sustainability initiatives have not been clearly defined. This paper specifically examines the role of environmental managers in advancing environmental sustainability and social responsibility. It is part of a broader study to identify the extent to which various departments or functional units within an organization are prepared to play a role in these initiatives based on a survey of various professionals in relation to activities and action items derived from the ISO 26000 standard on social responsibility.

As expected, the findings indicate that environmental managers are positioned to play a critical role in advancing environmental sustainability and social responsibility in their organizations. However, there appears to be disparity between the role that environmental managers indicated they are prepared to play and the perceptions of their role held by others in the organization. While environmental managers indicated that they would support or play a major role in 18 of the 35 action items on which they were surveyed, professionals from other functional units indicated that environmental managers would be involved in only a few key areas focused on traditional environmental issues associated with pollution prevention and waste management. This suggests that environmental managers are prepared to play a much broader role in the organization's sustainability and social responsibility efforts but may not be fully utilized in this capacity.

## KEY WORDS

Environmental Manager, Environmental Sustainability, Social Responsibility

In response to increasing environmental legislation in the 1970s and 1980s, the initial focus of environmental management as a profession was on regulatory compliance and enforcement. In the 1990s, this role began to shift from reactive to proactive with the environmental manager leading the way (Morelli 1999; NAEM 2010). Today, in what many hope will be known as the age of sustainability, environmental professionals are beginning to take on a more integrated role "leading corporate efforts toward sustainability" (NAEM 2010).

This research attempts to identify the roles

and levels of leadership that environmental managers feel prepared and positioned to assume in various elements of their organization's environmental sustainability and social responsibility initiatives and to answer the following questions:

1. What should be the role of environmental managers in their organization's environmental sustainability and social responsibility efforts?
2. Which other departments or functional areas within an organization are best positioned to collaborate with environmental managers on these efforts?

The results suggest that while the embedded role of environmental managers in the organization positions them to collaborate with several other departments or functional areas on sustainability and social responsibility efforts, their abilities may not be fully realized. Beyond technical and regulatory compliance-related efforts to manage environmental impacts and prevent pollution, environmental managers may be underutilized.

The concept of sustainability is broad. The Brundtland Commission, chartered by the World Commission on Environment and Development (1987), defined sustainable development as "development that meets the needs of the present without compromising the ability of future generations to meet their own needs." While this definition is widely recognized and accepted, it does not provide clear direction on its application or the roles and responsibilities that the various functional units should play in an organization.

In this work, sustainability is considered to be a combination of "social responsibility" as set forth in *ISO 26000:2010 Guidance for Social Responsibility* (ISO 2010) and "environmental sustainability" defined by Morelli (2011a) as follows:

... a condition of balance, resilience, and interconnectedness that allows human society to satisfy its needs while neither exceeding the capacity of its supporting ecosystems to continue to regenerate the services necessary to meet those needs nor by our actions diminishing biological diversity.

## II. OBJECTIVE AND METHODOLOGY

This study examines the roles and responsibilities of environmental managers in advancing environmental sustainability and social responsibility within the organization and is part of a broader research effort to define the related responsibilities of a variety of professionals across the organization. The objective of the broader study is presented below:

**Objective** (Excerpted from Morelli, J., "Introduction," "Mapping Roles and Responsibilities for Environmental Sustainability and Social Responsibility," graduate research project assignment, unpublished 2011.)

Since the concept of sustainability is so broad as to transcend any one profession, and not knowing who should be doing what becomes an obstacle to progress in this direction, the objective of this work is to help identify to what extent various professions may be prepared and well-positioned to contribute toward a more sustainable future. ...This project attempts to define the related roles and responsibilities of professionals in various functional units within the organization. Faculty and students at RIT have been conducting ongoing research for the last two years aimed at mapping responsibility for moving an organization towards a more environmentally sustainable and socially responsible future.

In an effort to more clearly define these roles, an electronic survey was administered to professionals in the following departments or functional areas:

- environmental,
- occupational health and safety,
- legal,
- process/product design,
- purchasing,
- manufacturing,
- facilities management,
- operations,
- marketing, and
- human resources.

The survey consisted of 35 questions derived from action items identified in the ISO 26000 Social Responsibility Standard (ISO 2009) in relation to organizational governance, human rights, labor practices, environment, health and safety, fair operating practices, consumer issues, and community involvement and development.

Based on the premise that their organization had decided to move toward becoming more sustainable and socially responsible and was asking professionals in each department and functional area to contribute to this effort, respondents were asked to select the role or level of responsibility that they considered most appropriate for their department or functional unit:

- major (leadership role),
- supporting (engaged role), or
- minor (limited or no role).

Respondents also were asked to identify any other departments or functional units aside from their own that they perceived as playing a significant role in accomplishing each action item. This "perceived role" data from the broader study is compared in this study with responses from environmental managers

themselves. In addition, where other departments or functional units indicated a major role for an action item in which environmental managers also indicated a role, the applicable departments are listed as potential collaborators on that issue.

The survey was issued to 1,994 environmental managers identified by a direct marketing mail list provider and yielded 101 responses for a response rate of 5.07%. The precision of the environmental data ranged from +/- 9.7 to 10.6% with an average precision of +/- 10.3% using a 95% confidence level.

*Data Analysis and Assumptions*

The data was initially screened to identify action items for which at least 50% of participating environmental managers indicated a particular responsibility level. While this initial screening based on criteria from the broader study methodology was helpful in identifying clear cases for leadership roles in several action items, several important data points were not captured or identified as noteworthy using this approach. For many items, responses were largely divided between major and supporting roles. When the responses indicating a major role were combined with those indicating a supporting role, it was evident that environmental managers felt positioned to take *at least* a supporting role in several additional areas. In order to capture this information, a new "involved role" category was identified where the combined responses indicated for major role and supporting role exceeded 50%.

### III.    SURVEY FINDINGS

*Major Role*

The majority of environmental managers indicated they were positioned to play a major role in five action items related to pollution prevention,

sustainable resource use, climate change mitigation, and raising environmental and social responsibility awareness among those with which the organization has relationships. Specific action items, response levels, and potential collaborators are shown in Table 1. Collaborators consist of the other departments or functional units that also indicated they could play a major role for those action items based on the responses in the broader study.

Consistent with environmental managers' self-indicated roles and responsibilities, other professionals perceived that environmental managers would play a major role in two of the action items identified in Table 1: implementation of measures to minimize waste and prevent pollution and identification and minimization of adverse impacts on ecosystems and biodiversity. However, these professionals did not indicate a major role for environmental managers for the other three action items related to toxic and hazardous material use, programs and practices for sustainable resource use, and raising environmental and social responsibility awareness.

Responses to the broader survey identified health and safety, operations, and facility management
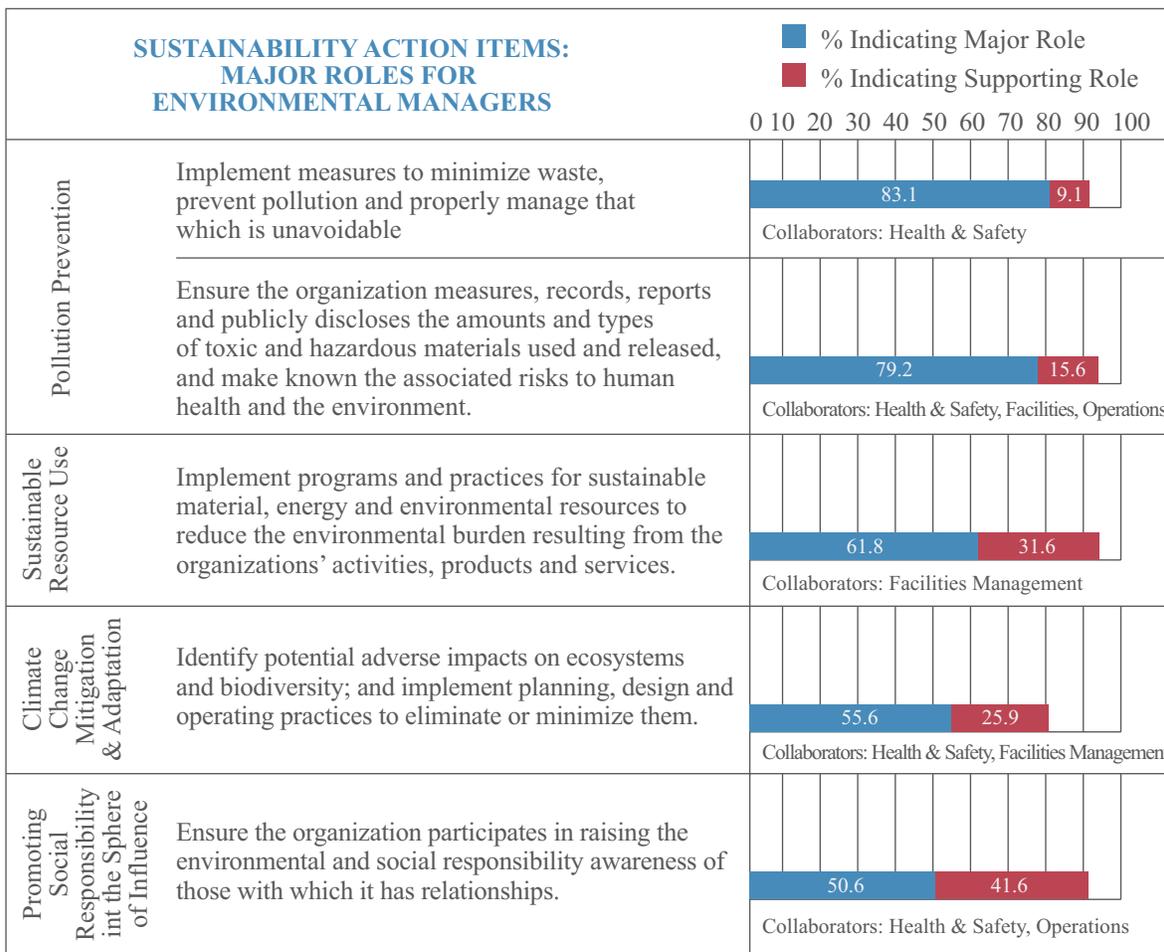


Table 1: Major Roles for Environmental Managers

functions as potential collaborators on these items as indicated in Table 1. This shared responsibility coincides with the overlapping roles professionals play in these departments and may be an indication of the importance of close collaboration in promoting and furthering environmental sustainability and social responsibility.

*Involved Role*

Based on the initial screening, the survey data did not definitively indicate that the majority of environmental managers would take a supporting role for any of the action items. However, there were 13 items for which the majority of responses were divided, indicating that environmental managers were prepared to be significantly involved by taking a major or supporting role.

Table 2 (*see page 64*) displays the action items for which environmental managers felt positioned to take on an involved role, including potential collaborators where applicable.

### IV.　HEALTH, SAFETY, AND THE ENVIRONMENT

With more than 75% of respondents indicating at least a supporting role, environmental managers appeared to identify significantly with actions related to:

- occupational health and safety management;
- consumer health and safety; and
- climate change mitigation and adaptation.

In addition, health and safety, human resources, and operations professionals identified a major role in occupational health and safety management items indicating a clear opportunity for further collaboration with these departments or functions. Health and safety personnel indicated a major role

in providing consumers with safer products as well but not in providing consumers with accurate information about environmental and social factors related to products.

In relation to climate change mitigation and adaptation, purchasing and operations professionals identified a major role in considering environmental and social responsibility criteria in selection of suppliers and contractors. However, no other professionals in the broader study self-identified a major role in the climate change category in relation to incorporation of environmental protection in development projects or consideration of market mechanisms to internalize the cost of the organization's environmental impacts.

### V.　ORGANIZATIONAL GOVERNANCE AND FAIR MARKETING

Also, environmental managers overwhelmingly indicated an involved role in ensuring that the organization:

- is governed in a manner that balances the needs of the organization and its stakeholders, including future generations (74.1%); and
- does not engage in any deceptive, misleading, fraudulent, or unfair practices (76.3%).

Operations and human resource professionals self-identified as major collaborators for both of these items.

### VI.　SUSTAINABLE CONSUMPTION, COMMUNITY, AND HUMAN DEVELOPMENT

Finally, environmental managers indicated to a slightly lesser extent that they would be willing to

# SUSTAINABILITY ACTION ITEMS: MAJOR ROLES FOR ENVIRONMENTAL MANAGERS

**Legend:** ▮ % Indicating Major Role (blue)  ▮ % Indicating Supporting Role (red)

Scale: 0 10 20 30 40 50 60 70 80 90 100

| Category | Action Item | % Major Role | % Supporting Role | Collaborators |
|----------|-------------|-------------|-------------------|---------------|
| Wealth and Income Creation | Give preference to local suppliers of products and services and contribute to local supplier development where possible and practicle. | 6.8 | 45.2 | Collaborators: Purchasing |
| Community Involvement | Systematically consult/participate in representative community groups for the purpose of contributing to the public good and the community's development. | 20.5 | 37 | |
| Sustainable Consumption | Provide consumers with accurate information about the environmental and social factors related to its products and services. | 37 | 39.7 | |
| Sustainable Consumption | Ensure the organization offer consumers socially and environmentally beneficial products. | 21.9 | 46.6 | |
| Protecting Consumers' Health and Safety | Ensure the organization provides products and services that, under normal and reasonably forseeable conditions of use, are safe for users and other persons, their property, and the environment. | 37.3 | 48 | Collaborators: Operations, Health & Safety |
| Fair Marketing | Ensure the organization does not engage in any deceptive, misleading, fraudulent or unfair practices, including omission of critical information. | 40.8 | 35.5 | Collaborators: Operations, Human Resources (HR) |
| Climate Change Mitigation and Adaptation | Incorporate the protection of natural habitat, wetlands, forest, wildlife corridors, protected areas and agricultural lands into land development projects. | 45.6 | 30.4 | |
| Climate Change Mitigation and Adaptation | Consider environmentally and socially responsible performance when evaluating and selecting suppliers and contractors. | 36.7 | 45.6 | Collaborators: Purchasing, Operations |
| Climate Change Mitigation and Adaptation | Consider market mechanisms, such as carbon emissions trading, to internalize the cost of environmental burdens resulting from the organizations'activities, products and services. | 42 | 39.5 | |
| Health & Safety at Work | Analyze, control and communicate the health and safety risks involved in the organizations' activities and ensure that all workers follow safe practices and procedures. | 42.5 | 38.8 | Collaborators: Health & Safety, HR, Operations |
| Health & Safety at Work | Apply principles of health and safety management and provide health and safety protection for all workers. | 46.8 | 36.4 | Collaborators: Health & Safety, HR, Operations |
| Human Development and Training in the Workplace | Provide all workers at all stages of the work experience with access to skills development, training, and opportunities for career advancement. | 21.1 | 43.4 | Collaborators: Human Resources |
| Organizational Governance – General Expectations | Ensure the organization is governed in a manner that balances the needs of the organization and its stakeholders, including immediate needs and those of future generations. | 29.4 | 44.7 | Collaborators: Operations, Human Resources |

*Table 2: "Involved" Roles for Environmental Managers*

take at least a supporting role in:

- ensuring that the organization offers environmentally and socially beneficial products (68.5%);
- providing employee professional/skills development (64.5%);
- contributing to local supplier development (62%); and
- participating in community groups to contribute to the public good (57.5%).

Human resources self-identified as a collaborator in employee development, and purchasing self-identified as a collaborator on local supplier development; however, no other departments indicated a major role in community group involvement or in provision of beneficial products.

The perceptions of other professions regarding the roles of environmental managers indicated in the broader study only aligned with environmental managers' self-indicated roles for two action items:

- considering market mechanisms to internalize environmental costs; and
- incorporating the protection of the environment into land development projects.

This correlation outlines these two action items as areas where environmental managers are viewed as having a leadership role and should accept more responsibility. However, the data indicates that environmental managers are not perceived by others in the organization as serving a significant role in other areas for which they have indicated a willingness to be involved.

*Minor Role*

Environmental managers indicated they had a minor or negligible role for 17 out of the 35 action items addressed in the survey, and this finding was further substantiated by the perceptions of other departments or functional areas from the broader study. Action items under community involvement and development, consumer data protection, human rights - due diligence, labor practices and employment conditions, and fair operating policies were indicated largely as outside of the scope of the environmental manager's role. However, the data indicates that not all environmental managers may consider these as minor roles and may be areas for further investigation. Appendix I includes a detailed listing of these items and survey responses.

## VII.    LITERATURE REVIEW

The literature indicates that the environmental management profession is evolving with an increasingly strategic focus on environmental sustainability and social responsibility. While regulatory compliance management and environmental technical knowledge continue to be important aspects, the increasing emphasis on sustainability has expanded the role of the environmental manager toward more proactive and integrated management approaches within the organization (ENEP 2012; Neuvelt 2010). Butler (2009) argues that environmental managers serve a multifunctional role and continually strive for more sustainable practices that can be accomplished through more efficient processes and more eco-friendly raw materials. The Institute of Environmental Management and Assessment (IEMA) further asserts that effective environmental professionals must serve a "cross functional, diverse, multi-level, change agent role" (2011).

Today's environmental managers serve as internal facilitators, guiding and enabling sustainability efforts across multiple functional areas within the firm while simultaneously serving as the

environmental stewards of the corporate world, managing the relationship between the firm and the environment (Neuvelt 2010; Morelli & Butler 2008). Internal and external communication is an important overarching aspect of the environmental manager's role as a means to raise awareness among key stakeholders (Maclean 2005). In providing stakeholders with accurate information about environmental and social factors related to products and services, Florida and Davison (2001) suggest that environmental management systems can be used as a tool for communication of important information to all key stakeholders and can leverage the important information that must be communicated.

Organizations are considering environmental impacts from a broader perspective, engaging numerous functional areas within the firm in environmental issues, including plant managers, product designers, and research and development departments. Environmental managers can create internal relationships to integrate environmental practices throughout the business and are critical in developing the firm's policies and programs to achieve scientific objectives related to environmental impacts and sustainability as well as evaluating whether these efforts can succeed in advancing sustainability within the context of the organization and its business framework (ENEP 2012; Rosenbeck 2008; NAEM 2010; Neuvelt 2010).

Generally environmental managers have clearly defined responsibilities related to environmental aspects and impacts, including the reduction of negative environmental impacts of the organization's processes, maintaining regulatory compliance, and avoiding unnecessary environmental liabilities (Butler 2008; Ott 1998). Their technical knowledge, problem-solving abilities, and management skills can advance environmental stewardship in the organization (Neuvelt 2010). They often interact with personnel at all levels of the organization from workers on

the production floor to upper management. These contacts place them in an excellent position to determine issues, possible opportunities, and solutions throughout the organization (Ott 1998). Often environmental managers must break down barriers within companies since they work with nearly all aspects of the organization. This ability promotes not only stronger organizational governance but also allows for better early detection of issues since communication is more open (Friedman 1992).

In addition, environmental managers have a role in raising environmental awareness of all members of the organization (Greenwood & Bliss 2010; Morelli & Butler 2008). Their interaction with others across the organization positions them for vertical and horizontal communication to ensure that every member of the organization can know current internal events and can have a voice to upper management (Greenwood & Bliss 2010). Internal stakeholders may not be fully aware of the organization's environmental and social responsibility efforts and metrics, and raising awareness can further enable collaboration and provide the firm with a greater chance of success in pursuing its goals (Neuvelt 2010; Maclean 2005). In addition, Daily and Huang (2001) suggest that environmental managers must provide adequate training to all employees in terms of reducing environmental impacts and promoting social responsibility, since both of these requires active and knowledgeable participation from all employees at an organization.

The external role of the environmental manager deals with environmental sustainability in managing the relationship between the firm and the environment but is also linked to social responsibility. The global public holds companies to an increasing expectation to become more socially responsible and improve the welfare of society, and socio-economic, social, and environmental factors have become part of measuring a company's performance

(Morelli 2011b). Since the environment directly relates to and affects society, social responsibility partly falls on the shoulders of environmental managers. Environmental managers have taken on responsibilities related to sustainable resource use, restoring the environment, and mitigating climate change, in addition to their traditional roles in protecting the environment and preventing pollution (Morelli 2011b).

Environmental managers play a role also in external environmental communication and awareness, including reporting on the firm's progress toward environmental initiatives, responding to stakeholder inquiries about environmental performance and sustainability, and engaging the supply chain (NAEM 2010). External communication with interested parties, including suppliers, industry groups, academia, and public interest groups, is critical with respect to raising awareness, collaboration, and transparency (Greenwood & Bliss 2010). Championing stakeholder engagement ensures important information is communicated effectively and directly from the source. Furthermore, environmental objectives may be more successful when environmental managers "embed sustainable thinking across the organization value chain," which makes sustainability a variable considered by all major stakeholders in the organization (IEMA 2011).

Human rights activities are of specific concern also, since often environmental issues can lead to human rights violations (Amazon Defense Coalition 2009). Kay (1997) asserts that it is imperative that environmental managers take a more active role in these activities and that they consider the implications of every process that may challenge human rights.

*Major Role Correlations*

With respect to the survey findings, there appears to be a strong correlation with findings in academic and professional literature. Environmental managers who responded to the surveys indicated that they are prepared to play a major role in:

- keeping track of hazardous materials and informing the public of possible harm to humans and the environment;
- minimizing waste and preventing pollution;
- identifying and minimizing environmental impacts from the organization's activities;
- raising environmental and social responsibility awareness; and
- establishing programs for sustainable resource use.

By ensuring the organization records and reports hazardous waste, Larson and Larson (1998) suggest that environmental managers should utilize a management systems approach to properly measure the waste. IEMA suggests that since environmental managers track the waste, they should then inform all stakeholders of its inherent dangers. Nearly 79.2% of environmental managers consider this a major role, and collaboration should occur with Health and Safety as they can help characterize the dangers of the hazardous material for the people coming into contact with the waste.

For waste minimization and pollution prevention, environmental managers can improve resource utilization rates and improve the efficiency of production to reduce the waste that is created (Larson & Larson 1998). Of the environmental managers surveyed, 83.1% indicated this as a major role, and collaboration should occur between Health and Safety, Facility Management, and Operations. Health and Safety can assist with reducing hazardous waste that may pose a threat to human health; Facility Management can ensure proper waste disposal at the facility itself; and Operations can ensure that production processes are as efficient as possible and that recycling occurs.

For identifying potentially adverse impacts on ecosystems and determining ways to mitigate them, Larson and Larson again suggest that environmental managers should use a management systems approach to determine areas of concern and possible mitigation strategies. Of the environmental managers surveyed, 55.6% indicated this as a major role and, again, a small percentage of Health and Safety and Facility Management professionals indicated this as a role as well.

In terms of raising environmental and social responsibility awareness, MacLean (2005) suggests environmental managers must understand the true importance of raising awareness of all key stakeholders, including other functional units within the firm, members of the supply chain, consumers, and local community members. Nearly 50.6% of environmental professionals considered this one of their major roles, and a small percentage of Health and Safety and Operations professionals indicated they had a role in raising awareness as well. This figure may indicate that these professionals could assume a larger role in this area.

In implementing sustainable energy and resource use, Butler (2009) suggests that environmental managers play a multifunctional role and must use sustainable practices including more efficient processes and eco-friendly materials. 61.8% of environmental managers indicated that they play a major role in this area, and Facility Managers are the main collaborators because they can ensure that sustainability initiatives are implemented to lower energy use and that more sustainable materials are used.

Professionals in other functional areas perceived a major role for environmental managers in considering market mechanisms to internalize the organization's environmental costs and incorporating environmental protection into land development projects. For internalizing the cost of environmental matters, Panayotou (1994) suggests environmental managers serve the vital role of calculating true environmental costs and should internalize this cost as part of the price charged to customers, essentially serving as the "full-cost accounting." 81.5% of environmental managers indicate this as an area where they may play some role.

Protecting the environment from land development projects is a critical task of environmental managers during mergers, acquisitions, and new development. Environmental due diligence requires that proper environmental assessments are completed prior to any transactions or new construction. Due diligence allow environmental managers to outline all the possible environmental ramifications from the firm's proposed actions and determine necessary changes to remediate or eliminate the possible impacts (Wallace 2010). The majority of environmental managers did not indicate this as a major role in the surveys; however, 76.0% indicated an involved role.

## VIII.    CONCLUSIONS

The environmental manager's roles and responsibilities have been evolving from a traditional focus on regulatory compliance, as well as pollution prevention and control, to a larger role in the organization's pursuit of environmental sustainability and social responsibility. In this study, the literature supports the survey results indicating that environmental managers can play a major or involved role in a wide range of environmental sustainability and social responsibility initiatives. Environmental managers identified a major or involved role in 18 of the 35 action items. However, environmental managers were only perceived by professionals in other functional units as playing a major or involved role in 4 of the 35 action items. This perceived role is inconsistent with the environmental manager's role expressed in the literature and self-indicated by environmental managers in the survey. This study suggests that environmental managers

are underestimated and may be underutilized within their organization.

Environmental managers should have a prominent role in an organization's pursuit of environmental sustainability and social responsibility; however, professionals in all functional units should have a formal role in these efforts. Partnering with these professionals may serve as an opportunity for raising environmental and social responsibility awareness. For environmental managers to fully perform their responsibilities, they must break down barriers within the organization to join forces with the numerous functional units with which they interact (Friedman 1992).

The survey results suggest that environmental managers could collaborate with:

- health and safety, operations, and facility management functional areas to complete many pollution prevention, sustainable resource use, and climate change-related action items;
- health and safety, operations, and human resources functional areas on matters related to health and safety at work and employee skills development;
- purchasing professionals on supplier selection and development activities;
- operations and health and safety professionals on consumer health and safety issues; and
- operations and human resources professionals on organizational governance issues related to ethics and stakeholder expectations.

The data did not show any ties to the legal, marketing, or product and process design functional areas. In addition, there were no conclusive indications that any other functional areas would take a supporting role in action items related to

community involvement, sustainable consumption, incorporating environmental protection into land development projects, or considering market mechanisms to internalize environmental costs. However, opportunities for collaboration may exist and should be investigated further. Each organization should explore and clearly define the related roles of environmental managers and other professionals in relation to its sustainability and social responsibility objectives. In addition, further research on the relationships between various functional units should be conducted to further understanding of the potential roles of environmental managers and other professionals in advancing environmental sustainability and social responsibility.

## IX.    REFERENCES

[1]    Butler, B. P. *Ecological Balance: The Greater Goal of the Environmental Manager*. Rochester Institute of Technology 2009. *ProQuest Dissertations & Theses (PQDT)*, Web.< http://search.proquest.com.ezproxy.rit.edu/docview/305074668?accountid=108>

[2]    Byrns, Jr., E. "A Model for a Firm's Optimal Environmental Policy." *Engr Economist* 39.3 (1994): 249-249. Web. 7 February 2012.

[3]    "Chevron's 'Amazon Chernobyl' Lawsuit in Ecuador: Subject of Congressional Hearing on Environment and Human Rights." *Business Wire*. Amazon Defense Coalition, 2009.

[4]    Daily, B. F. & Huang S. "Achieving Sustainability Through Attention to Human Resource Factors in Environmental Management." *Intern'l Jour of Operations & Production Mgmt* 21.12 (2001): 1539-1552.

[5]    Fischoff, M. "The Middle Manager Role in Energy Company Environmental Efforts." U Mich 2005. *ProQuest Dissertations & Theses (PQDT)*, Web.  <http://search.proquest.com.ezproxy.rit.edu/docview/

305465395?accountid=108>

[6]     Florida, R. & Davison, D. "Gaining from Green Management: Environmental Management Systems Inside and Outside the Factory 2001 <http://creativeclass.com/rfcgdb/articles/Gaining%20from%20Green%20Management.pdf>.

[7]     Fraser, E. D. G., Dougill, A. J., Mabee, W. E., Reed, M., & McAlpine, P. "Bottom Up and Top Down: Analysis of Participatory Processes for Sustainability Indicator Identification as a Pathway to Community Empowerment and Sustainable Environmental Management." *Jour Environmental Mgmtt* 78.2 (2006): 114–127 doi:10.1016/j.jenvman.2005.04.009.

[8]     Friedman, F. B. "The Changing Role of the Environmental Manager." *Business Horizons* 35. 2 (Mar 1992): 25. Web. (6 Feb 2012). <http://ezproxy.rit.edu/login?url=http://search.ebscohost.com/login.aspx?direct=true&db=bsh&AN=9707080020&site=ehost-live>

[9]     Fryxell, G. E. & Lo, C. W. H. "The Influence of Environmental Knowledge and Values on Managerial Behaviours on Behalf of the Environment: An Empirical Examination of Managers in China." *Jour Business Ethics* 46.1 (2003): 45-69.

[10]    Greenwood, L. & Bliss, A. "The Disparate Mission of the Sustainability Manager." *Sixth Environ Mgmt Leadership Sym,* Luneburg, Germany 2010 http://www.environmentalmanager.org/.

[11]    Institute of Environmental Management & Assessment (IEMA). *IEMA's Skill Map.* Newport, Lincoln, UK. 2011 <http://www.iema.net/access_environment/developingskillsknowledge/skillsmap>.

[12]    International Organization for Standardization (ISO). *ISO 26000: 2010 Guidance on Social Responsibility.* Geneva 2010.

[13]    International Organization for Standardization (ISO). ISO/TMB/WG SR N 172 ISO/DIS 26000 Draft International Standard. Geneva 2009.

[14]    Kay, J. "Called to Account: John Kay: Does Shell have a Responsibility to Take Care of the Environment or to Advance Human Rights?" *Financial Times* 16 May 1997.

[15]    Keen, M., Brown, V. A., & Dyball, R. "Social Learning in Environmental Mgmt: Towards a Sustainable Future." *Earthscan* 2005 <http://lutung.lib.ums.ac.id/dokumen/ebooks/Pendidikan/2011/7/26/Social_learning_in_environmental_management__towards_a_sustainable_future-1.pdf>.

[16]    Larson, T. & Larson, K. "Environment: Value to Business." *GEMI* 2007 <http://www.environmentalmanager.org/wp-content/uploads/2007/12/evtb_001.pdf>.

[17]    MacLean, R. "Corp Environmentalism: In Search of Vision, Leadership, and Strategy." *Environmental Quality Mgmt* 2005 Autumn <DOI: 10.1002/tqem.20064>.

[18]    Morelli, J. *Voluntary Environmental Mgmt: The Inevitable Future*. NY: CRC 1999.

[19]    Morelli, J. & Butler, B. P. "The Goals of the Environmental Manager." *Third Intern'l Environ Mgmt Leadership Sym* Dubrovnik, Croatia 2008 <http://www.environmentalmanager.org/index.php/2011/02/environmental-management-leadership-symposia-history/>.

[20]    Morelli, J. "Environmental Sustainability: A Definition for Environmental Professionals." *Jour of Environmental Sustainability* 1.1 (2011): 19-27.

[21]    Morelli, J. "Regarding Social Responsibility." *EnvironmentalManager.org* 2011 <http://www.environmentalmanager.org/index.php/category/topicsissues/roleoftheem/with-respect-to-corporate-social-responsibility/>.

[22]    National Assn of Environmental Mgrs (NAEM). *What is EHS?* DC 2010 <http://www.naem.org/?page=What_is_EHS>.

[23]    Neuvelt, C. S. "The Role of Environmental Mngr in the Age of Sustainability." *NAEM Green Tie Blog* 2010 <http://greentie.

naem.org/2010/04/19/the-role-of-the-environmental-manager-in-the-age-of-sustainability/>.

[24]    Ott, H. J. "Preface to Environment: Value to Business." *GEMI* 1998 <http://www.environmentalmanager.org/wp-content/uploads/2007/12/evtb_001.pdf>.

[25]    Panayotou, T. "Economic Instruments for Environmental Mgmt and Sustainable Development." *UNEP & EEU* 1994 <http://www.conservationfinance.org/guide/guide/images/40_panay.pdf>.

[26]    - - -. "Professional Network Ready to Help Achieve Biodiversity Targets." *European Network of Environmental Professionals (ENEP)* 2012 <http://www.efaep.org/news/article/80/>.

[27]    Stannegard, L. "Flexible Couplings: Combining Business Goals and Environmental Concern." *Business Strategy and the Environment* 9 (2000): 163-174 <http://www.environmentalmanager.org/wp-content/uploads/2007/12/flexible-couplings.pdf >.

[28]    Wallace, M. "M&A Transactions: Are you Making These Costly Due Diligence Mistakes?" *EHS Jour* 2010 <http://ehsjournal.org/http:/ehsjournal.org/mark-wallace/ma-transactions-due-diligence-mistakes/2010/>.

[29]    Winnebeck, K. H." Today's Environmental Mgr's Toolbox: Evaluating the EHS Attributes of Products." *Jour of Environmental Sustainability* 1 (2011) <http://www.environmentalmanager.org/wpcontent/uploads/2011/09/Article8Winnebeck1.pdf>

**APPENDIX**

| Core Areas | Subcategories | Action Items | Environmental Manager Self-Indicated |
|---|---|---|---|
| **Labor Practices** | Employment and Employment Relationships | Ensure work done for or on behalf of the organization is performed by legally employed persons. | (60.8%) |
| | Conditions of Work and Social Protection | Ensure that the conditions of work comply with national laws and regulations and are consistent with relevant international labor standards. | (53.4%) |
| | Employment and Employment Relationships | Ensure the protection of employee personal data and privacy. | (53.2%) |
| **Human Rights** | Due Diligence | Ensure that the organization's policies and practices are free from bias or discrimination based on race, color, gender, age, nationality or national origin, ethnic or social origin, caste, marital status, sexual orientation, disability, health status, political affiliation or other bias. | (50.6%) |
| | Due Diligence | Create and effectively implement the human rights policy throughout the organization, including mechanisms to identify and address human rights abuses. | (60.2%) |
| **Fair Operating Practices** | Fair Competition | Ensure the organization conducts its activities in a manner consistent with competition laws and regulations and does not take advantage of social conditions, such as poverty, to achieve unfair competitive advantages. | (60.3%) |
| | Responsible Political Involvement | Ensure transparency regarding the organization's policies and activities related to lobbying and political involvement, and raise the awareness of employees and representatives regarding political involvement. | (70.3%) |
| | Anti-Corruption | Develop and apply anti-corruption policies and practices. | (68.4%) |

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| **Consumer Issues** | Consumer Data Protection | Limit the collection of personal data to information that is essential for the provision of products and services. | (63.5%) |
| | Consumer Data Protection and Privacy | Ensure the organization does not disclose, make available or otherwise use personal data for purposes other than those specified, except with the informed and voluntary consent of the consumer or when required by the law. | (58.9%) |
| | Privacy and Protecting Consumers' Health and Safety | Instruct consumers in the proper use of products and convey appropriate safety information. | (51.4%) |
| **Community Involvement & Development** | Social Investment | Consider promotion of community development in planning social investment projects. | (77.8%) |
| | Health | Promote good health by supporting community access to essential health care services, clean water and appropriate sanitation. | (58.3%) |
| | Wealth and Income Creation | Consider the economic and social impact of entering or leaving a community, including impacts on basic resources needed for the sustainable development of the community. | (70.3%) |
| | Technology Development and Access | Analyze the impacts of the organizations' investment decisions on local employment. | (83.8%) |
| | Education and Culture | Promote cultural activities; respect and value local cultures and cultural traditions. | (71.2%) |
| | | Promote and support education in the community, and engage in actions to improve the quality of and access to education. | (55.6%) |

*Table 3: Action items for which environmental managers indicated a minor or negligible role.*